

Patent claims

1. Device for the closure and/or protection of openings in structures, with vertical closure elements (10) in strip form, which are connected to one another in a hinge-like manner and in such a way that they can be turned about vertical longitudinal central axes (14), and with running carriages (12), which can be made to move on a horizontal running rail (13) and from which at least some closure elements (10) are suspended, characterized in that the running carriages (12) have a bearing body (32) made of plastic, four running wheels (22) made of plastic, mounted on two parallel axes, and a sliding bearing (33) made of plastic and with good emergency running properties, assigned to each running wheel (22).
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2. Device according to Claim 1, characterized in that the two running wheels (22) respectively lying on an axis are connected by a rotatable bolt (31), the running wheels (22) being fixed on the rotatable bolt (31) and each bolt (31) being mounted in the bearing body (32) by two sliding bearings (33).
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3. Device according to Claim 1 or 2, characterized in that the two sliding bearings (33) assigned to each bolt (31) are assigned to opposite lateral edge regions of the respective bearing body (32), preferably in such a way that an outer end face (35) of the respective sliding bearing (33) is exposed to form a stop face for each running wheel (22).
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4. Device according to one of the preceding claims, characterized in that the sliding bearings (33) are arranged more or less completely in corresponding receptacles (34) of the bearing body (32), preferably non-rotatably and non-displaceably.
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5. Device according to one of the preceding claims, characterized in that an underside of the running rail (13) formed in the manner of a box has a continuous longitudinal slot (20), narrow bottom edge strips (18) of the running rail (13) being formed on both sides of the longitudinal slot (20),

and the bearing body (32) of the respective running carriage (12) being guided in the longitudinal slot (20).

6. Device according to one of the preceding claims, characterized in that the lower region of the bearing body (32) of each running carriage (12) that extends through the longitudinal slot (20) of the running rail (13) is assigned at least one guiding roller (39), which can rotate freely about a vertical axis and can be brought into contact, alternating from side to side, with a guiding surface (edge 19) of the running rail (13) delimiting the longitudinal slot (20) on both sides.
- 10 7. Device according to one of the preceding claims, characterized in that the guiding roller (39) of each running carriage (12) is mounted in a freely rotatable manner on a connecting means extending in a vertically directed and central orientation through the bearing body (32), preferably a connecting screw (40), a closure element (10) to which a running carriage (12) is assigned preferably being respectively fastened to the running carriage (12) by the connecting means.
- 15 8. Device according to one of the preceding claims, characterized in that the two bottom edge strips (18) of the running rail (13) are respectively provided with at least one guiding means in a running surface (21) for the running wheels (22), the respective guiding means preferably being formed as a longitudinal groove (42).
- 20 9. Device according to one of the preceding claims, characterized in that the running wheels (22) assigned to the different axes of each running carriage (12) lie as close as possible behind one another, preferably in such a way that longitudinal central planes of the running wheels (22) lying one behind the other lie in a common, vertical plane, which runs centrally through the respective guiding means, in particular longitudinal groove (42), in each running surface (21) of the bottom edge strip (18).
- 25 10. Device according to one of the preceding claims, characterized in that the diameter of the running wheels (22) of equal size is slightly smaller the spacing between the parallel axes of the running wheels (22).

11. Device according to one of the preceding claims, characterized in that the diameter of the running wheels (22) or the spacing between the parallel axes on which the running wheels (22) are arranged is smaller than the spacing between the vertical longitudinal central planes of the running wheels (22) on opposite ends of the respective axis, the axial spacing between the opposite running wheels (22) preferably being 0.7 to 0.9 times the diameter of the running wheels (22) or the spacing between the parallel axes.
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12. Device according to one of the preceding claims, characterized in that the sliding bearings (33) are formed from a thermoplastic material with a graphite.
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13. Device according to one of the preceding claims, characterized in that the bearing bodies (32) are formed from high-strength, tough thermoplastic material, preferably polyamide.
- 15 14. Device according to one of the preceding claims, characterized in that the running wheels (22) are formed from a thermoplastic material which is wear-resistant and causes little running noise, preferably polypropylene.